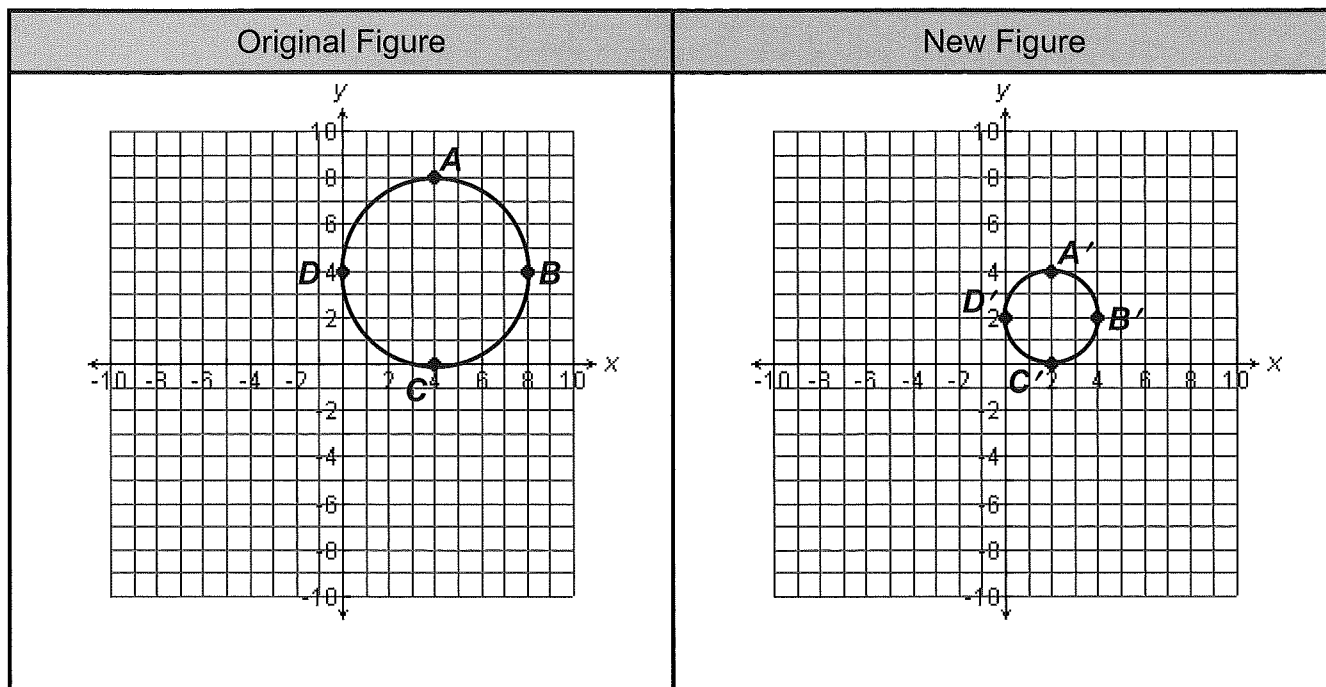




## Unit 5 Lesson 2

### Enlargement or Reduction

#### Dilation I



1 Complete the table below using the figures above.

Original Figure	A (__, __)	B (__, __)	C (__, __)	D (__, __)
New Figure	A' (__, __)	B' (__, __)	C' (__, __)	D' (__, __)

2 Is the dilation an enlargement or a reduction?

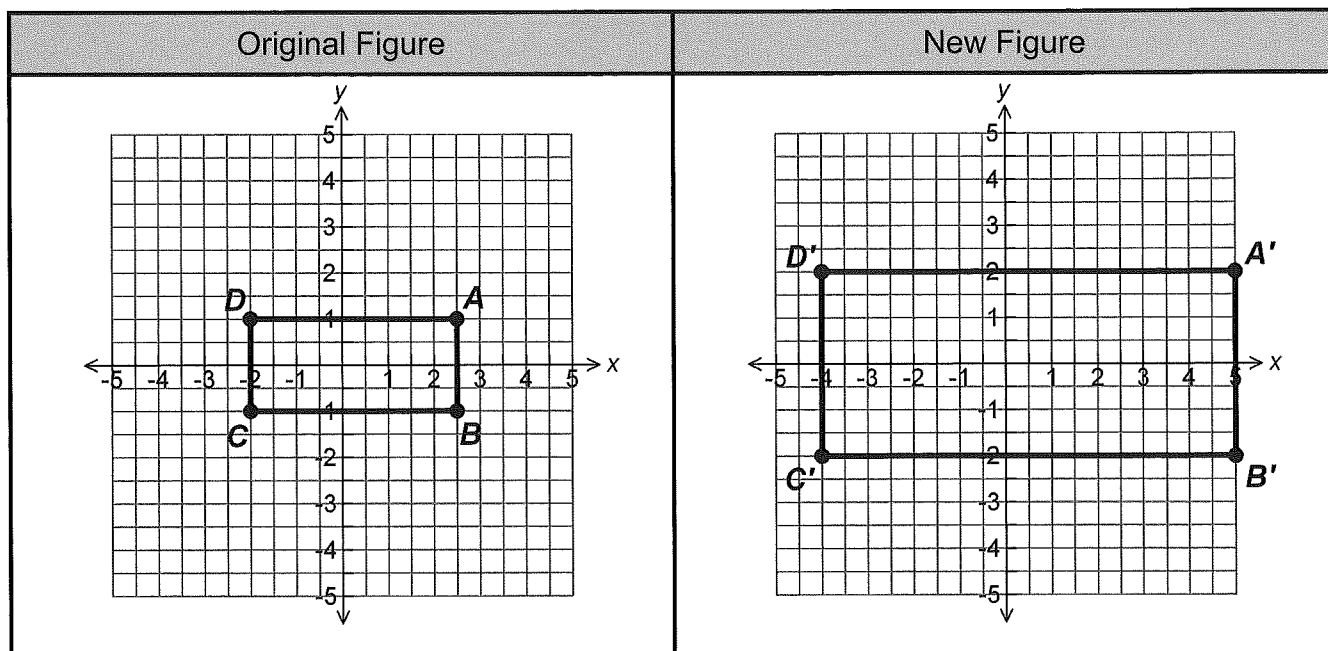
3 What scale factor was applied to the original figure to create the new figure?

4 How is the scale factor reflected in the ordered pairs? Justify your answer.



## Enlargement or Reduction

## Dilation II



5 Complete the table below using the figures above.

Original Figure	A (__, __)	B (__, __)	C (__, __)	D (__, __)
New Figure	A' (__, __)	B' (__, __)	C' (__, __)	D' (__, __)

6 Is the dilation an enlargement or a reduction?

7 What scale factor was applied to the original figure to create the new figure?

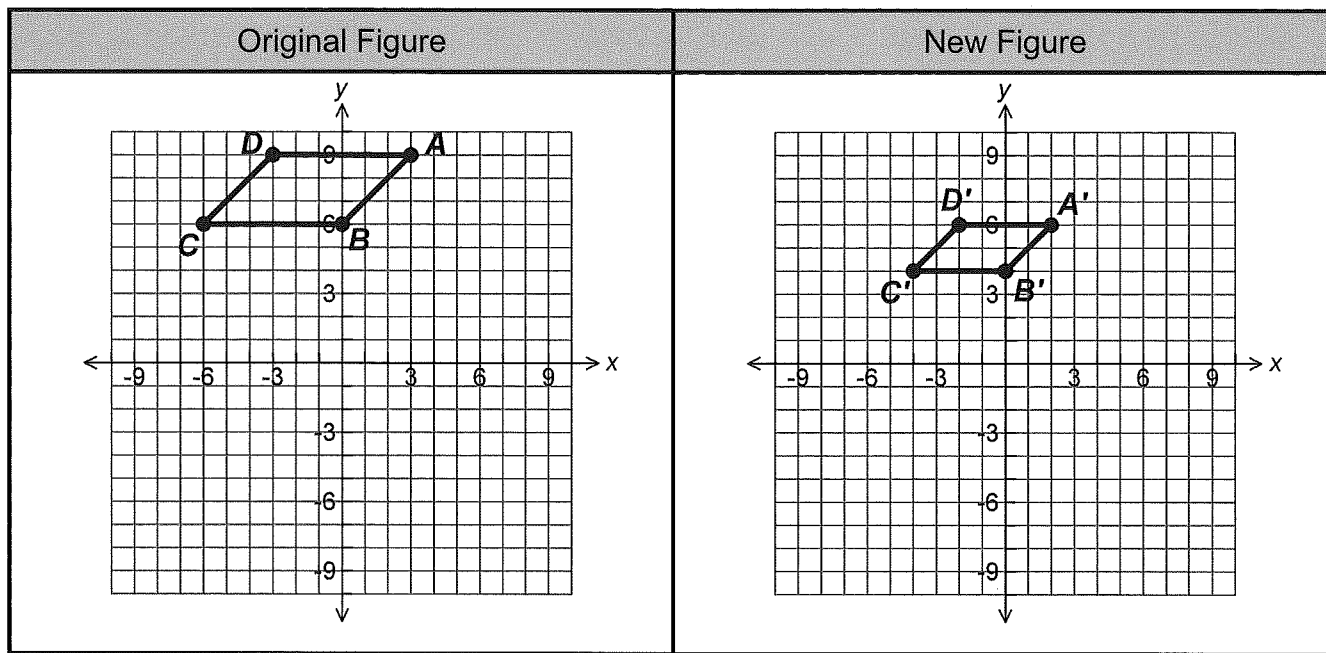
8 How is the scale factor seen in the ordered pairs? Justify your answer.



## Unit 5 Lesson 2

### Enlargement or Reduction

#### Dilation III



9 Complete the table below using the figures above.

Original Figure	A (__, __)	B (__, __)	C (__, __)	D (__, __)
New Figure	A' (__, __)	B' (__, __)	C' (__, __)	D' (__, __)

10 Is the dilation an enlargement or a reduction?

11 What scale factor was applied to the original figure to create the new figure?

12 How is the scale factor seen in the ordered pairs? Justify your answer.



## Dilation Vocabulary Organizer

<b>My Definition</b>	<b>Characteristics</b>
<b>Example</b>	<b>Non-Example</b>

**Dilation**

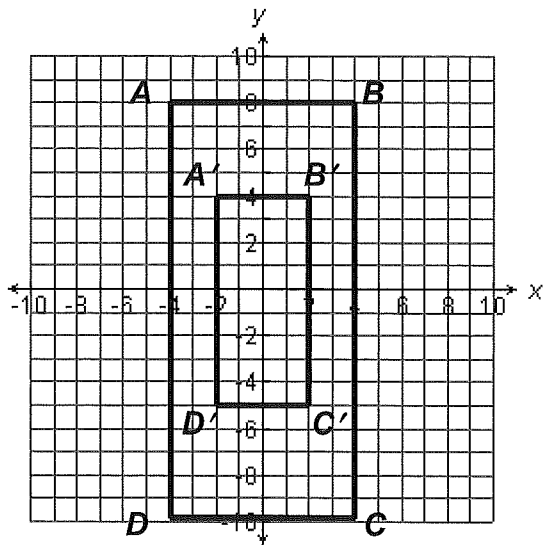


## Unit 5 Lesson 2

### Scale Factors

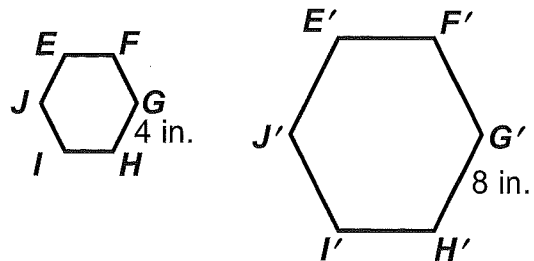
Determine the scale factor used to generate each new figure.

1



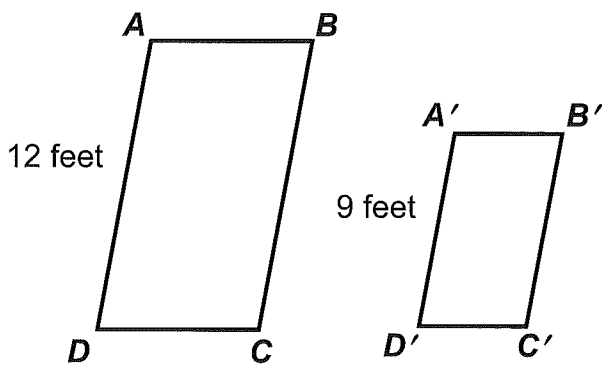
Scale factor = \_\_\_\_\_

2



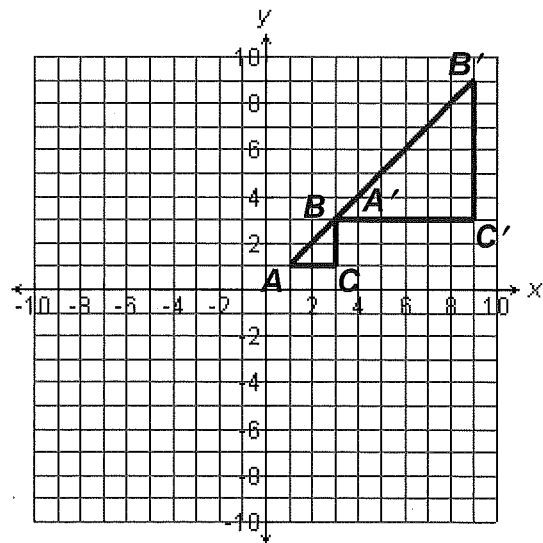
Scale factor = \_\_\_\_\_

3



Scale factor = \_\_\_\_\_

4

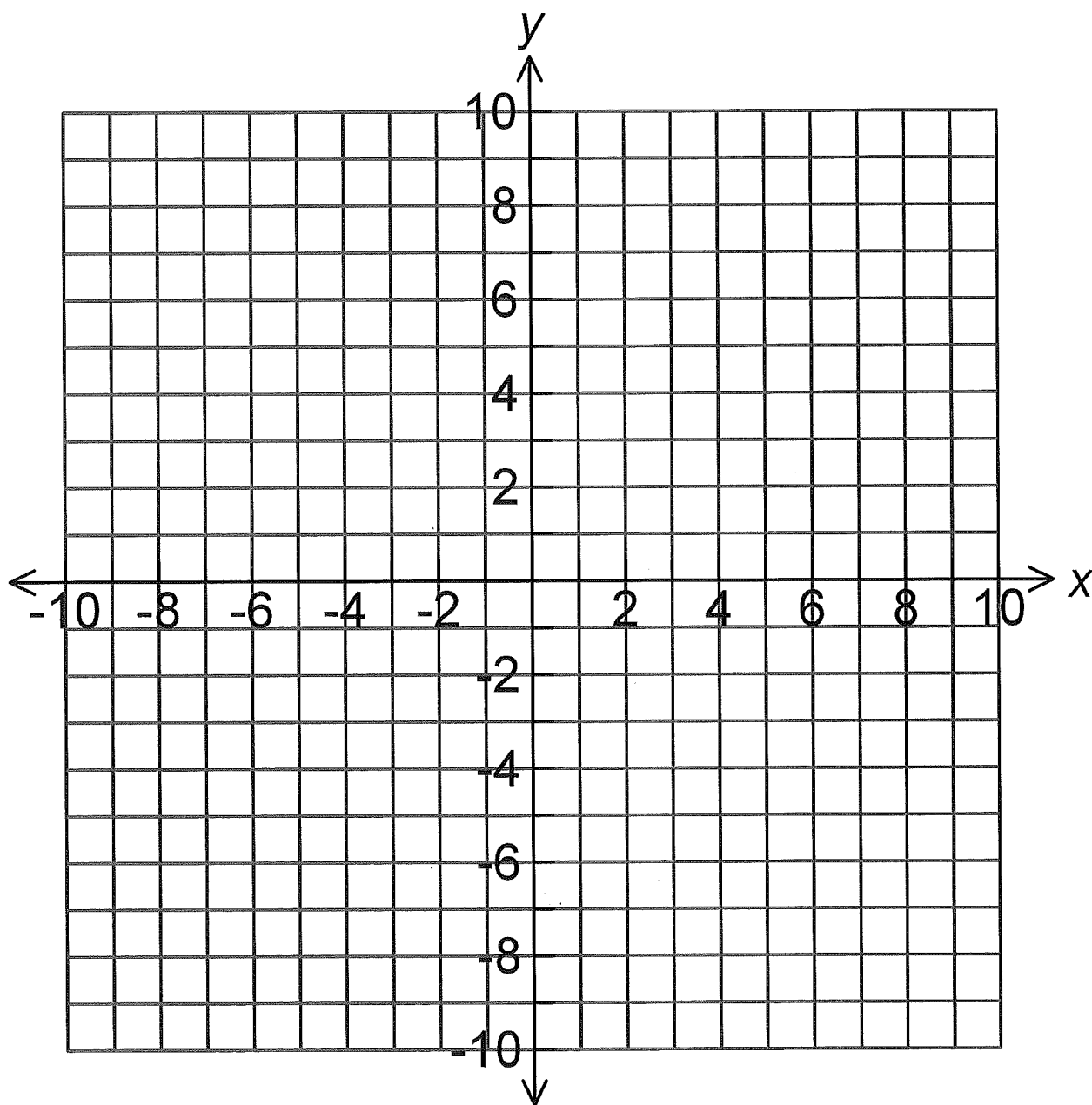


Scale factor = \_\_\_\_\_

## My Dilation

My character is \_\_\_\_\_. My scale factor is \_\_\_\_\_.

Original Character	A (_____)	B (_____)	C (_____)	D (_____)
New Character	A' (_____)	B' (_____)	C' (_____)	D' (_____)



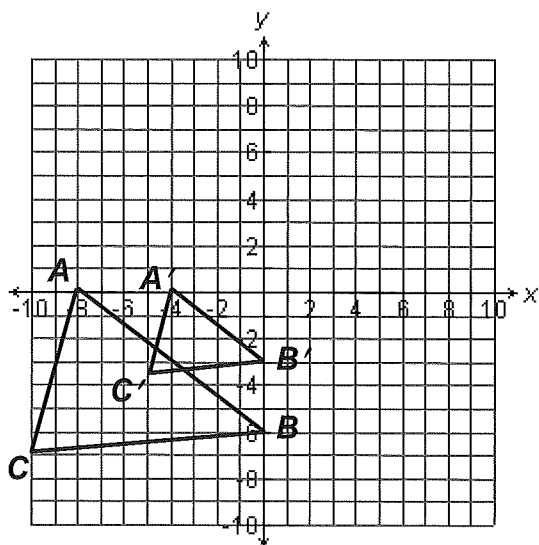


## Unit 5 Lesson 2

### Independent Practice

One type of transformation is a dilation. A dilation changes the size of a figure but does not change the figure's orientation. The figure and its dilation are similar.

Example: Triangle  $ABC$  was dilated to form triangle  $A'B'C'$ .  
This dilation is a reduction.



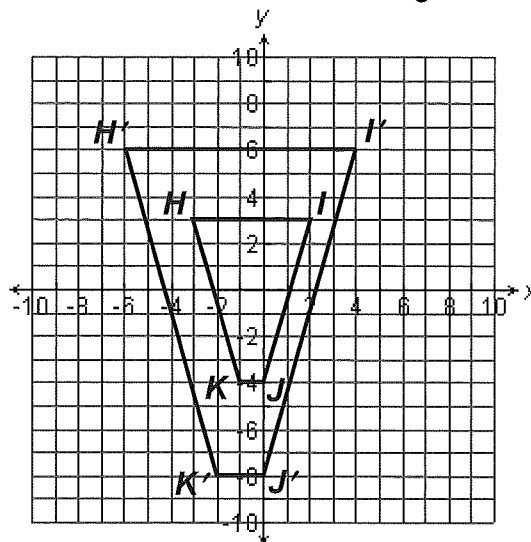
The scale factor can be found by comparing corresponding coordinates.

Original	$(-8, 0)$	$(0, -6)$	$(-10, -7)$
New	$(-4, 0)$	$(0, -3)$	$(-5, -3.5)$

Notice that the values of the x-coordinate and y-coordinate of the new figure are  $\frac{1}{2}$  of the values of the corresponding x-coordinate and y-coordinate of the original figure.

Therefore the scale factor is  $\frac{1}{2}$ .

Example: Quadrilateral  $HIJK$  was dilated to form quadrilateral  $H'I'J'K'$ .  
This dilation is an enlargement.



The scale factor can be found by comparing corresponding coordinates.

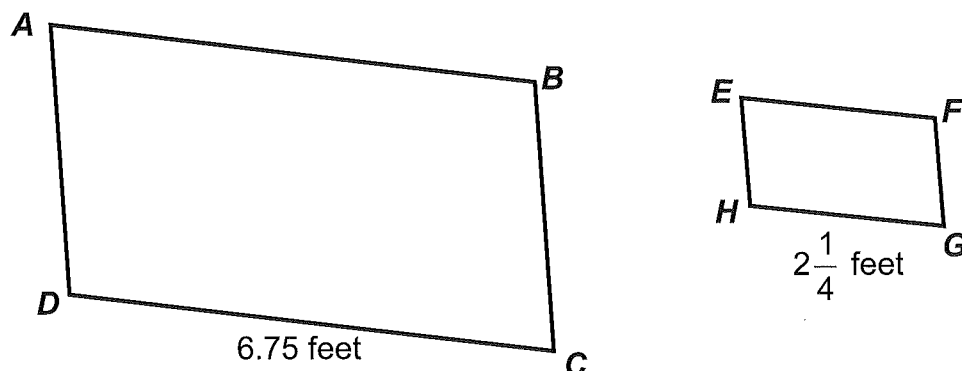
Original	$(-3, 3)$	$(2, 3)$	$(0, -4)$	$(-1, -4)$
New	$(-6, 6)$	$(4, 6)$	$(0, -8)$	$(-2, -8)$

Notice that the values of the x-coordinate and y-coordinate of the new figure are 2 times the values of the corresponding x-coordinate and y-coordinate of the original figure.  
Therefore the scale factor is 2.

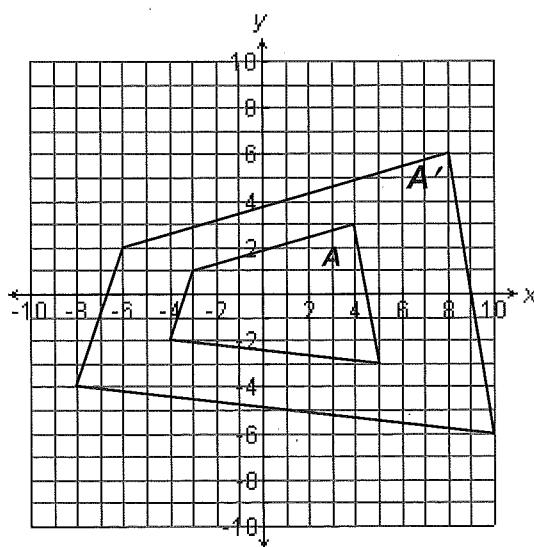
- 1 A scale factor of 6.5 is applied to a line segment with end points:  $A(1, -3)$  and  $B(5, 1\frac{1}{4})$ .  
What will be the coordinates of the endpoints of the new line segment?



- 2 Parallelogram  $ABCD$  is similar to parallelogram  $EFGH$ . What scale factor was used to dilate parallelogram  $ABCD$  to parallelogram  $EFGH$ ?



- 3 Alexander Printing is printing mouse-pad calendars that are similar in size and shape to their deluxe desk calendar. The printing press will dilate the deluxe calendar by a scale factor of 0.25. If the length of the deluxe desk calendar is 26 inches, what is the length of the mouse-pad calendar?
- 4 Figure  $A$  was dilated to form Figure  $A'$ .
- What is the scale factor used to change Figure  $A$  into Figure  $A'$ ?
  - Is the dilation an enlargement or a reduction? Justify your answer.

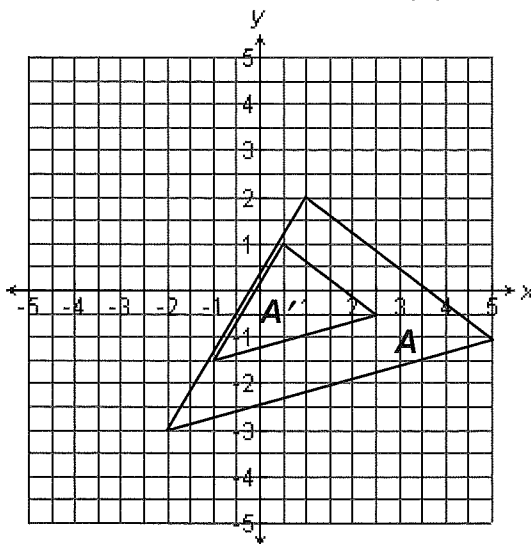




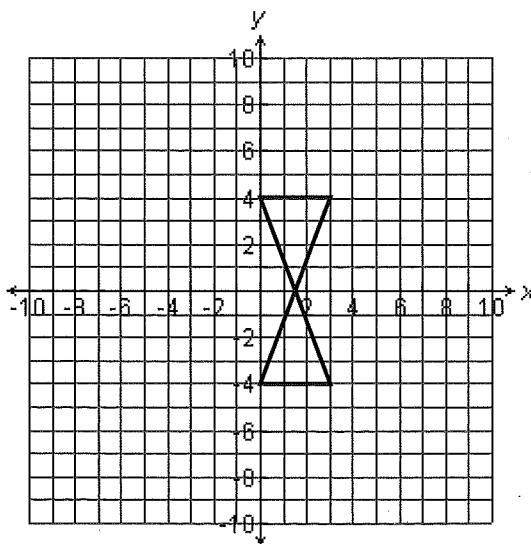


## Unit 5 Lesson 2

- 5 Figure A was dilated to form Figure A'.
- What is the scale factor used to change Figure A into Figure A'?
  - Is the dilation an enlargement or a reduction? Justify your answer.



- 6 Sketch the dilation of the figure below using a scale factor of 1.5.





### Painting Billboards

The ratio of the length to the width of a rectangular billboard is 5:7. If a similar billboard has a perimeter of 72 feet, what are its dimensions? Justify your answer.

FOR TEACHER USE ONLY:

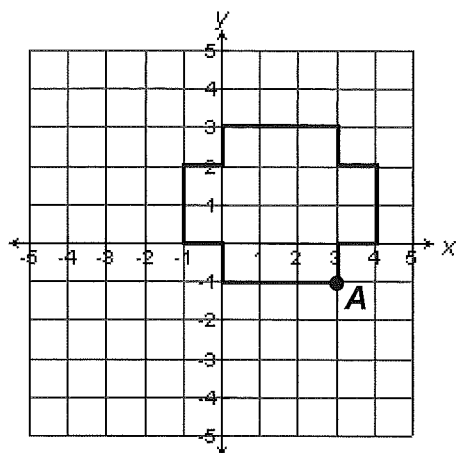
a. YES NO Student arrives at a correct solution?

	4	3	2	1
b. Conceptual Knowledge				
c. Procedural Knowledge				
d. Communication				



## Unit 5 Lesson 2

- 1 If the figure below is dilated using a scale factor of  $\frac{1}{4}$ , what will be the coordinates of  $A'$ ?

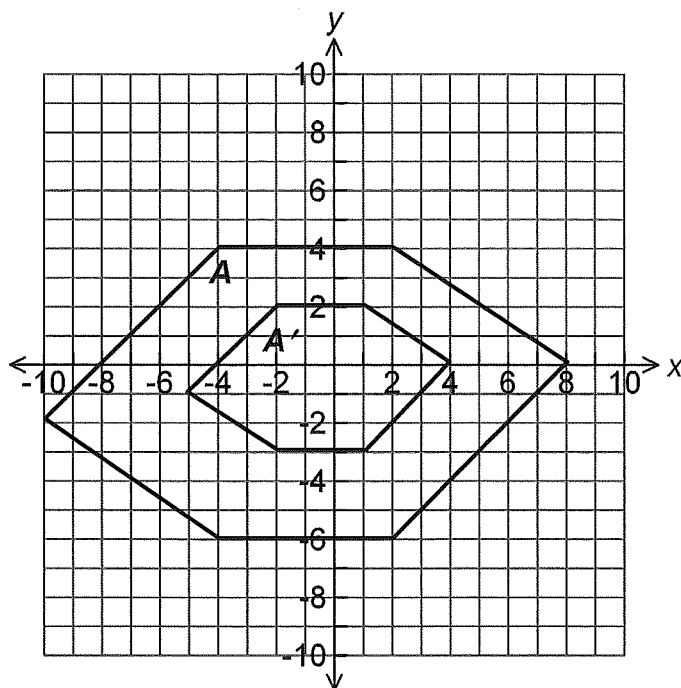


- A  $\left(\frac{3}{4}, -1\right)$
- B  $\left(3, -\frac{1}{4}\right)$
- C  $\left(\frac{3}{4}, -\frac{1}{4}\right)$
- D  $\left(-\frac{3}{4}, \frac{1}{4}\right)$

- 2 A commonly used scrapbook page measures 12 inches by 12 inches. Which is the largest scale factor that could be used to enlarge a picture which measures  $3\frac{1}{2}$  inches by  $4\frac{1}{4}$  inches to fit on the scrapbook page?

- A 2
- B 2.5
- C 3
- D 3.5

- 3 Figure A' is a dilation of Figure A.



What scale factor was applied to Figure A to create Figure A'?

- A  $\frac{1}{4}$
- B  $\frac{1}{2}$
- C 2
- D 4



## Unit 5 Lesson 2

- 4 Which graph shows the dilation of Figure A to create Figure A' when a scale factor of 2 is applied?

